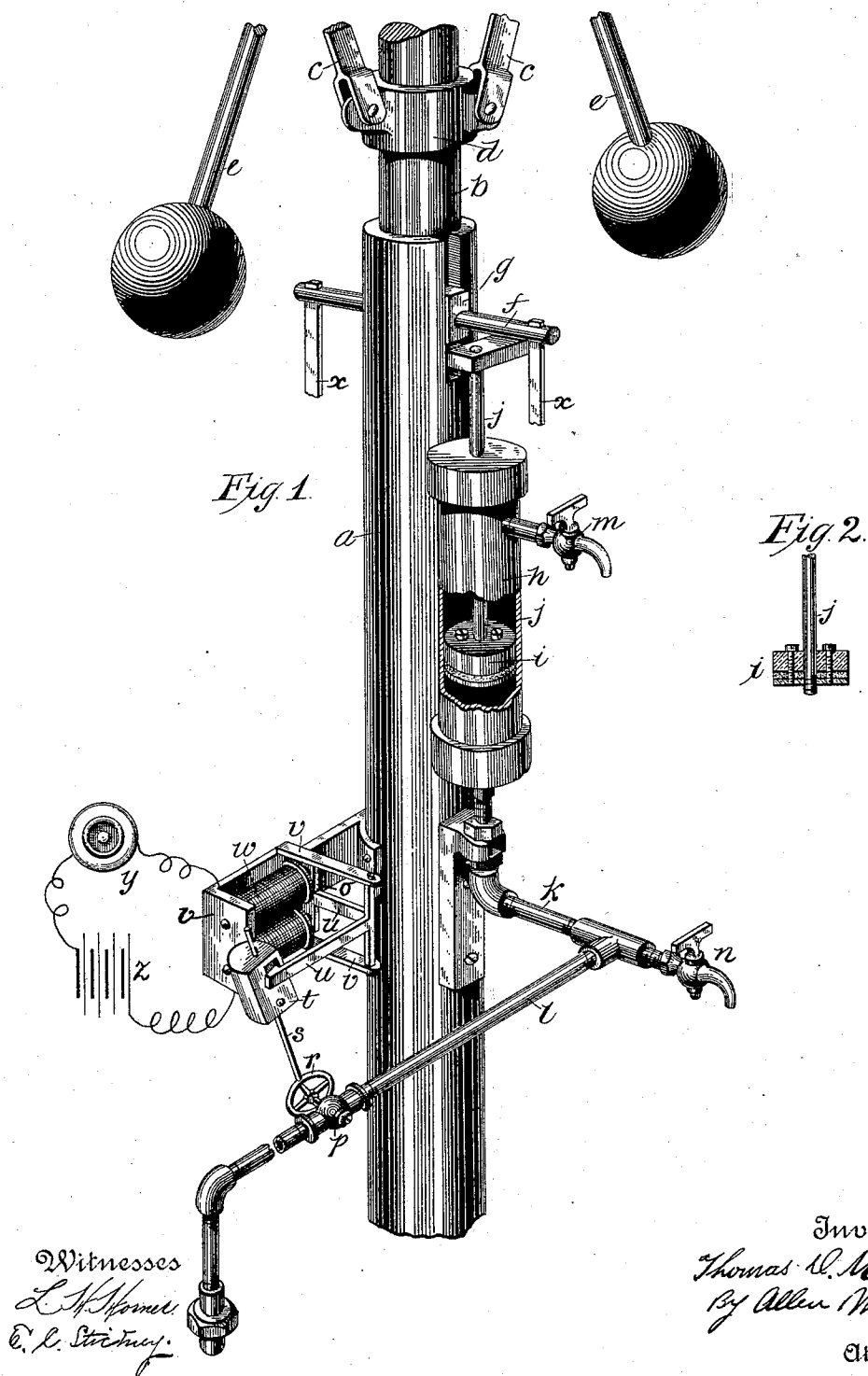


(No Model.)

T. D. MILLEA.
STOP DEVICE FOR ENGINES.

No. 578,650.

Patented Mar. 9, 1897.



UNITED STATES PATENT OFFICE.

THOMAS D. MILLEA, OF SPRINGFIELD, MASSACHUSETTS.

STOP DEVICE FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 578,650, dated March 9, 1897.

Application filed January 2, 1896. Serial No. 574,081. (No model.)

To all whom it may concern:

Be it known that I, THOMAS D. MILLEA, a citizen of the United States of America, residing in Springfield, in the county of Hampden, in the State of Massachusetts, have invented new and useful Improvements in Stop Mechanism for Engines, of which the following is a specification.

My invention relates to improvements in mechanism or means arranged and adapted to stop the movement of an engine by shutting off the supply of steam to the steam-cylinder, the stop mechanism being so arranged as to be set into action from a point remote from the engine; and the object is to provide a mechanism of the kind named and for the purposes intended which is positively effective in its operation and which is readily applicable to engines of different constructions. I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a perspective of a portion of a common and well-known form of ball-governor having my invention applied thereto. Fig. 2 is a detail sectional view of a preferred form of construction of the piston-head used in the device.

In Fig. 1 of the drawings I have illustrated my invention as applied to a governor of the common and well-known type of engine known as the "Corliss," and it will readily be perceived that without material change the invention may be applied to governors and engines of other types. It is deemed unnecessary herein to describe the well-known operation and construction of the governor illustrated. The description will therefore be limited to the general application of my device thereto.

The steam-cylinder *h* is shown as mounted upon the governor-post *a*, and is so arranged that if the piston-rod *j* is driven upward it will operate against a cross-rod *f* and thereby lift the cross-rod, and through proper common and well-known connections and mechanism operate to shut off the steam from the engine-cylinder in the same manner as if the governor were rotated rapidly and the governor-balls thereby moved outward and upward, the downward-projecting rods *x* being connected with the cross-rod *f*, and through

these and other well-known connections the grab-hooks are prevented from engaging the necessary parts on the steam-valves and thus stop the entrance of steam into the engine-cylinder.

The means devised by me for causing the piston-head in the shut-off cylinder *h* to be moved upward and the steam to the engine-cylinder to be cut off is an arrangement whereby steam may be allowed to enter the cut-off cylinder *h* by a pipe connection with the boiler, and for that purpose I connect the cylinder *h* with the boiler or other steam-pipe by pipes *k* and *l*, and in these pipes I mount a valve *p*, of any convenient form of construction, which may be operated by the employment of a weight or spring or other means, so that when this valve *p* is open the steam rushes into the cylinder *h* through the pipes and causes the piston-rod to be moved upward and lift the cross-rod *f*, which rod, as stated, has connection to the valves in the engine-cylinder. I have illustrated one simple means of causing this valve *p* to be opened, which consists in providing the hand-wheel or stem of the valve with a rod or lever *s*, upon which is mounted a weight *t*, as shown in the drawings, which is provided with a recess or projection or other means for engagement, whereby a latch, lever, or stop or other catch device may engage the same and retain it in position until released, when by reason of a weight, spring, or other contrivance the lever or rod *s* moves and causes the valve *p* to be opened and thus permit the entrance of steam to the cut-off cylinder.

I have illustrated as one means of maintaining the lever *s* in the desired normal position and for releasing the same an arrangement of electromagnets *w*, mounted in a suitable supporting-frame *v*, and pivotally mounted in the frame *v* or adjacent thereto is a bell-crank lever *u*, one arm of which is provided with a means for maintaining the lever *s* in its normal position and the other arm of which is provided with an armature disposed adjacent to the cores of the magnet, and it will readily be seen that when the electromagnets are energized by being placed in the circuit of electrical energy they will operate to draw the armature toward and against the cores and thus throw the opposite arm of the bell-

crank lever out of engagement and allow the inlet-valve to operate, as before stated.

The source of electrical energy may be arranged at any convenient place and the conducting-wires carried to various parts of the building and push-buttons, switches, or other make-and-break appliances interposed in the circuit, so that whenever it may be desired to immediately stop the engine, as happens in case of accident, it simply becomes necessary to operate the make-and-break device to complete the circuit through the magnets, causing them to be energized and to draw the armature into contact with their cores, moving the bell-crank lever out of engagement with the lever *s* and permitting the valve *p* to be opened to admit steam into the steam-cylinder *h*, which causes the piston to move upward, lifting the cross-rod *f* and cutting off the steam at the engine-cylinder, as hereinbefore stated, and stopping the engine.

It will readily be seen that other means for releasing or operating the inlet-valve *p* may be substituted for the arrangement of electromagnets herein illustrated.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a shut-off for steam-engines, the combination with the governor-post, the governor, and the valves of the engine-cylinder, of a movable cross-rod in the governor-post, suitable connections between the cross-rod and the engine-cylinder valves, a steam-cylinder, a piston in the steam-cylinder arranged to

move the said cross-rod, a steam-pipe leading from the engine-boiler into the steam-cylinder below the piston, and a valve in the steam-pipe to control the admission of steam to the steam-cylinder.

2. In a shut-off for steam-engines, in combination with the governor, and the engine-cylinder valves, and the governor-post, of a cross-rod in the governor-post suitably connected to the valves in the engine-cylinder, a steam-cylinder secured to the governor-post, a piston in the steam-cylinder having its rod arranged to support and move the cross-rod, a steam-pipe leading into the lower end of the steam-cylinder, a valve in the steam-pipe, and means substantially as described for opening and closing the said valve.

3. In combination with the governor of a steam-engine and the valve-controlling mechanism, of a shut-off mechanism comprising a cross-rod *f*, in the governor-post, connecting-rods *x, x*, leading to the grab-hooks of the cylinder-valves, a cylinder *h*, a piston *t* having the rod *j* in contact with the cross-rod *f*, a steam-pipe *k, l*, a valve *p*, in the steam-pipe, a lever *s* to turn the valve, a weight on the lever, an electromagnet, an armature formed with an arm *u* to engage and hold the weight, an electric circuit, and a make-and-break device in the circuit.

THOMAS D. MILLEA.

Witnesses:

ALLEN WEBSTER,
M. J. CARROLL.